

EXHIBIT 1

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| | USP 5,625,410 | U.S. Patent No. 5,237,408 Filing date: 8/2/1991 Issue date: 8/17/1993 |
| | Asserted claims | Blum |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"A system which retrofits to an existing surveillance system and cooperates with sensors, video cameras and video monitors of the existing surveillance system." Abstract.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>Discloses "computerized video switch" that receives video signals from cameras.</p> <p>FIG. 1, including Computerized Video Switch and accompanying text.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> <p>"[The FG/FS board] digitizes the analog video signal generated by the cameras 1-8 and stores the digital video image temporarily in a hardware FIFO buffer 76." 6: 18-21.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>FIG. 2, including FG/FS #1, #2 and #N and accompanying text. FIG. 4, including A/D Computer (Frame Grabber) and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"Several display boards are provided to display the digitized video data on display monitors." Abstract.</p> <p>"Further, each display board is connected to one of a plurality of high resolution video monitors 28." 3: 58-60.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>"Frames Per Camera—Total number of frames per camera that can be captured when an alarm occurs. System maximum of 64." 15: 32 – 16: 2.</p> <p>"Display Resolution – The system resolution for the images presented to the operator. Options include 256X240 pixels or 512X480 pixels (normal)." 16:3-5.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> <p>FIG. 1, including High Resolution Monitors and accompanying text. FIG. 2, including Display #1 - #3 and accompanying text.</p> |

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| | | FIG. 5, including Monitor and accompanying text. FIG. 15B and accompanying text. |
| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"The Transputer 80 then removes the digitized image from the FIFO buffer 76 and stores it in a large software controlled FIFO buffer located in the [Dynamic Random Access Memory] 82." 6: 58-60.</p> <p>"When an event occurs requiring the display of images stored in the FG/FS board, the Transputer 50 on the controller board sends a message requesting the FG/FS Transputer send the particular image(s) for that camera down the video link 38." 7: 7-11.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>"Disk Storage Devices (Number and Types) – The storage space the operator has for archiving images. Types include fixed disks (various sizes) and/or combinations of removable disks." 15:3-6.</p> <p>"Frames Per Camera—Total number of frames per camera that can be captured when an alarm occurs. System maximum of 64." 15: 32 – 16: 2.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> <p>FIG. 4, including FIFO Memory 76 and DRAM 82 and accompanying text. FIG. 5, DRAM 102 and accompanying text.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"A system which retrofits to an existing surveillance system and cooperates with sensors, video cameras and video monitors of the existing surveillance system." Abstract.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> |
| 12.2 | receiving video images from a plurality of sources; | <p>Discloses "computerized video switch" which receives video signals from cameras.</p> <p>FIG. 1 and accompanying text.</p> |
| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> <p>"[The FG/FS board] digitizes the analog video signal generated by the cameras 1-8 and stores the digital video image temporarily in a hardware FIFO buffer 76." 6: 18-21.</p> |

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| | | <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>FIG. 2, including FG/FS #1, #2 and #N and accompanying text. FIG. 4, including A/D Computer (Frame Grabber) and accompanying text.</p> |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>"Several display boards are provided to display the digitized video data on display monitors." Abstract.</p> <p>"Further, each display board is connected to one of a plurality of high resolution video monitors 28." 3: 58-60.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>"Frames Per Camera—Total number of frames per camera that can be captured when an alarm occurs. System maximum of 64." 15: 32 – 16: 2.</p> <p>"Display Resolution – The system resolution for the images presented to the operator. Options include 256X240 pixels or 512X480 pixels (normal)." 16:3-5.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> <p>FIG. 1, including High Resolution Monitors and accompanying text. FIG. 2, including Display #1 - #3 and accompanying text. FIG. 5, including Monitor and accompanying text. FIG. 15B and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"The FIFO buffer in the DRAM contains sufficient memory space for storing an entire sequence of images for each camera." 6: 60-63.</p> <p>"When an event occurs requiring the display of images stored in the FG/FS board, the Transputer 50 on the controller board sends a message requesting the FG/FS Transputer send the particular image(s) for that camera down the video link 38." 7: 7-11.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>"Disk Storage Devices (Number and Types) – The storage space the operator has for archiving images. Types include fixed disks (various sizes) and/or combinations of removable disks." 15:3-6.</p> <p>"Frames Per Camera—Total number of frames per camera that can be captured when an alarm occurs. System maximum of 64." 15: 32 – 16: 2.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System</p> |

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| | | <p>minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> <p>FIG. 4, including FIFO Memory 76 and DRAM 82 and accompanying text.</p> <p>FIG. 5, DRAM 102 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"A system which retrofits to an existing surveillance system and cooperates with sensors, video cameras and video monitors of the existing surveillance system." Abstract.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | <p>"This [FG/FS] board digitizes the analog video signal generated by the cameras 1-8..." 6: 18-19.</p> <p>FIGS. 1, 4 and accompanying text.</p> |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | <p>Means to receive the signals from each camera and digitally compress the images is at least Computerized Video Switch 16, FG/FS #1, #2 and #N, and A/D Converter 74.</p> <p>"Several frame grabber/frame storage processing boards are provided, each of which digitizes the analog video signals from the video cameras and stores the digital data in a solid state buffer memory." 2: 9-13.</p> <p>"For example, the option modules connected to the FG/FS boards may include image data compressors which operate on the digitized images to compress the digital image data. The compressed data is then stored back in the FG/FS board and placed over the video link, when desired. Likewise, the option modules connected to display boards may comprise decompressors to decompress the compressed data which is then supplied to a monitor. This would result in increased image storage capabilities and decreased transmission times." 5:21-31.</p> <p>"[The FG/FS board] digitizes the analog video signal generated by the cameras 1-8 and stores the digital video image temporarily in a hardware FIFO buffer 76." 6: 18-21.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>FIG. 1, Computerized Video Switch 16 and accompanying text.</p> <p>FIG. 2, including FG/FS #1, #2 and #N and accompanying text.</p> <p>FIG. 4, including A/D Computer (Frame Grabber) 74 and accompanying text.</p> |
| 15.4 | a computer configured to receive the digitally compressed images, the computer | <p>"Other types of option modules may be used to support data transmission. For example, the option modules connected to the FG/FS</p> |

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| | USP 5,625,410 | U.S. Patent No. 5,237,408 Filing date: 8/2/1991 Issue date: 8/17/1993 |
| | being interfaced to the following devices: | boards may include image data compressors which operate on the digitized images to compress the digital image data. The compressed data is then stored back in the FG/FS board and placed over the video link, when desired. . . . Compressed images could also be communicated out of the DVSS 10 via a modem 201 for decompression in a remote system." 5:18-31. Discloses that video output of the FIFO memory "is connected to a Transputer processor 80." 6: 36-37. "The Transputer then removes the digitized image from the FIFO buffer and stores it in a large software controlled FIFO buffer located in the DRAM 82." 6: 58-60. "Bubble 5 represents software for communication data preparation including software for compression and decompression of data for interface with fax machines and modems." 9:45-48. FIG. 4, including Transputer Processor 80 and accompanying text. |
| 15.5 | a display screen, | "Several display boards are provided to display the digitized video data on display monitors." Abstract. "Further, each display board is connected to one of a plurality of high resolution video monitors 28." 3: 58-60. "Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66. FIG. 1, including High Resolution Monitors and accompanying text. FIG. 2, including Display #1 - #3 and accompanying text. FIG. 5, including Monitor and accompanying text. FIG. 15B and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and | Means to receive externally derived operator commands is at least Video Switch Keyboard 26 and Digital Video Surveillance System. Means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras is at least MD Modules 42(1)-42(N) and CD Modules 44(1)-44(N). "The video switch keyboard allows an operator to manually route a video signal from any camera to a live video monitor." 3: 37-39. "...motion detection modules (MD) may be connected to the FG/FS boards respectively to analyze the digitized video data for any motion or change in a field of view of any camera associated with the motion detection module." 5: 3-7. "The CD modules identify areas of change in images displayed as a result of an external sensor alarm." 5: 14-16. "The [Digital Video Surveillance System] maintains a user defined table of command strings and associated actions." 8: 48-50. |

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| | | FIG. 1, including Digital Video Surveillance System and Video Switch Keyboard 26 and accompanying text. FIG. 2, including MD Modules 42(1)-42(N) and CD Modules 44(1)-44(N) and accompanying text. |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | <p>"The FIFO buffer in the DRAM contains sufficient memory space for storing an entire sequence of images for each camera." 6: 60-63.</p> <p>"When an event occurs requiring the display of images stored in the FG/FS board, the Transputer 50 on the controller board sends a message requesting the FG/FS Transputer send the particular image(1) for that camera down the video link 38." 7: 7-11.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>"The controller board communications with disk I/O devices via a Small Computer System Interface (SCSI) disk controller 43. This provides for access to devices that conform to the SCSI protocol, hard disk storage and retrieval, file management, copying and deleting for disk stored files, activity log maintenance, etc." 8:55-60.</p> <p>"Disk Storage Devices (Number and Types) – The storage space the operator has for archiving images. Types include fixed disks (various sizes) and/or combinations of removable disks." 15:3-6.</p> <p>FIG. 4, including FIFO Memory 76 and DRAM 82 and accompanying text.</p> <p>FIG. 5, including DRAM 102 and accompanying text.</p> |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | <p>"Several display boards are provided to display the digitized video data on display monitors." Abstract.</p> <p>"Further, each display board is connected to one of a plurality of high resolution video monitors 28." 3: 58-60.</p> <p>"Specifically, as shown in FIG. 15B, there are four image display areas on a monitor screen." 11: 65-66.</p> <p>FIG. 1, including High Resolution Monitors and accompanying text.</p> <p>FIG. 2, including Display #1 - #3 and accompanying text.</p> <p>FIG. 5, including Monitor and accompanying text.</p> <p>FIG. 15B and accompanying text.</p> |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>"The CHANGE button causes the active display window to be enlarged to the full size of the display." 13: 32-33.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, and | <p>"The FIFO buffer in the DRAM contains sufficient memory space for storing an entire sequence of images for each camera." 6: 60-63.</p> <p>"When an event occurs requiring the display of images stored in the</p> |

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| | | <p>FG/FS board, the Transputer 50 on the controller board sends a message requesting the FG/FS Transputer send the particular image(s) for that camera down the video link 38." 7: 7-11.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>FIG. 4, including FIFO Memory 76 and DRAM 82 and accompanying text.</p> <p>FIG. 5, including DRAM 102 and accompanying text.</p> |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"The FIFO buffer in the DRAM contains sufficient memory space for storing an entire sequence of images for each camera." 6: 60-63.</p> <p>"When an event occurs requiring the display of images stored in the FG/FS board, the Transputer 50 on the controller board sends a message requesting the FG/FS Transputer send the particular image(s) for that camera down the video link 38." 7: 7-11.</p> <p>"The A/D converter digitizes the analog video signal and stores the digital information in a hardware controlled FIFO memory 76, which serves as a buffer." 6: 55-57.</p> <p>"Frame Grab Rate—Interval between image frame grabs. System minimum of 500 milliseconds, maximum of 99 seconds. Separately programmable for each camera." 16: 12-15.</p> <p>FIG. 4, including FIFO Memory 76 and DRAM 82 and accompanying text.</p> <p>FIG. 5, including DRAM 102 and accompanying text.</p> |

EXHIBIT 2

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| # | USP 5,625,410 | U.S. Patent No. 4,650,929 Filing date: 2/28/1985 Issue date: 3/17/1987 |
| | Asserted claims | Boerger |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | "Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations." Claim 1. |
| 8.2 | receiving video images from a plurality of sources; | "The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33. "A central station is connected to all of the participant terminals and includes means for receiving source signals from and transmitting sink or received signals to all the participant terminals." 2: 39-42. FIG. 1, including Camera 26 and accompanying text. |
| 8.3 | digitizing one or more of the images if not already in digital form; | "The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33. "System of claim 1 wherein said central station includes analog-to-digital converter means." Claim 3. |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | "FIGS. 8, 9 and 10 show a selection of some examples of split-screen combinations of large pictures 46(u), 46(v) and 46(w) and small pictures of 47(x), 47(y), and 47(z)." 8: 62-64. "At every location, also the participant's own image can be displayed as a complete or full screen picture or a mixture or split screen picture arrangement on the individual monitors." 4: 6-9. "The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33. "Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...displaying at said particular station either an individually selected full screen picture or an individually combined split screen picture of a plurality of pictures which are correspondingly smaller than full said screen picture." Claim 1. FIG. 1, including Monitor 27 and accompanying text. FIG. 4 and accompanying text. |

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| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a central station comprising:...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations, each said video signal to be stored representing either a full screen picture or both a large picture and a small picture." Claim 1.</p> <p>"System of claim 1 wherein said video storage means are provided for storing video source signals corresponding to said large and small pictures and have a storage capacity for such a large picture and for a plurality of such small pictures." Claim 5.</p> <p>"According to the invention central stations can be equipped with any number of picture storage units and multiplexers but at least with a number needed for a single videoconference." 3: 43-47.</p> <p>"This equipment is assigned to the participating locations 25 always for the duration of video conference and it substantially comprises large picture storages 5 and small picture storages 6." 7: 12-15.</p> <p>"Parallel to large picture storage 5 a coarsened or small picture, i.e. one whose number of picture elements is two-dimensionally reduced (width and height)...and supplied to a small picture storage 6." 7: 37-43.</p> <p>FIG. 1, including Large Picture Storage 5 and accompanying text. FIG. 2, including Small Picture Storage 6 and accompanying text.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations." Claim 1.</p> |
| 12.2 | receiving video images from a plurality of sources; | <p>"The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33.</p> <p>"A central station is connected to all of the participant terminals and includes means for receiving source signals from and transmitting sink or received signals to all the participant terminals." 2: 39-42.</p> <p>FIG. 1, including Camera 26 and accompanying text.</p> |
| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33.</p> <p>"System of claim 1 wherein said central station includes analog-to-digital converter means." Claim 3.</p> |
| 12.4 | displaying at least certain of the digitized | "FIGS. 8, 9 and 10 show a selection of some examples of split-screen |

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| | images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>combinations of large pictures 46(u), 46(v) and 46(w) and small pictures of 47(x), 47(y), and 47(z)." 8: 62-64.</p> <p>"At every location, also the participant's own image can be displayed as a complete or full screen picture or a mixture or split screen picture arrangement on the individual monitors." 4: 6-9.</p> <p>"The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33.</p> <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...displaying at said particular station either an individually selected full screen picture or an individually combined split screen picture of a plurality of pictures which are correspondingly smaller than full said screen picture. " Claim 1.</p> <p>FIG. 1, including Monitor 27 and accompanying text. FIG. 4 and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a central station comprising:...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations, each said video signal to be stored representing either a full screen picture or both a large picture and a small picture." Claim 1.</p> <p>"System of claim 1 wherein said video storage means are provided for storing video source signals corresponding to said large and small pictures and have a storage capacity for such a large picture and for a plurality of such small pictures." Claim 5.</p> <p>"According to the invention central stations can be equipped with any number of picture storage units and multiplexers but at least with a number needed for a single videoconference." 3: 43-47.</p> <p>"This equipment is assigned to the participating locations 25 always for the duration of video conference and it substantially comprises large picture storages 5 and small picture storages 6." 7: 12-15.</p> <p>"Parallel to large picture storage 5 a coarsened or small picture, i.e. one whose number of picture elements is two-dimensionally reduced (width and height)...and supplied to a small picture storage 6." 7: 37-43.</p> <p>FIG. 1, including Large Picture Storage 5 and accompanying text. FIG. 2, including Small Picture Storage 6 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | "Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent |

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| | | locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations." Claim 1. |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | <p>"The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33.</p> <p>"A central station is connected to all of the participant terminals and includes means for receiving source signals from and transmitting sink or received signals to all the participant terminals." 2: 39-42.</p> <p>"It is important that every participating location needs, of course, a camera, a single monitor, and the usual microphone loudspeaker means." 2: 61-64.</p> <p>FIG. 1, including Camera 26 and accompanying text.</p> |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | <p>Means to receive externally derived operator commands is analog-to-digital converter 9.</p> <p>"The video source signals 41 coming from camera 26 are supplied to an analog-to-digital converter 9 wherefrom they pass, through an intermediate or first-in-first-out buffer storage (FiFo) 10, if provided, to a large picture storage 5." 7: 29-33.</p> <p>"System of claim 1 wherein said central station includes analog-to-digital converter means." Claim 3.</p> |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | "In a video control processor 16, a standard program is stored according to which mixed or split screen picture of the individual large pictures...and/or small picture...are combined to the size of a full or complete screen picture 45 (FIG. 8)." |
| 15.5 | a display screen, | FIG. 1, including Monitor 27 and accompanying text. FIG. 4 and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and | <p>Means to receive externally derived operator commands is "programmed processor" that receives control signals from participant terminals.</p> <p>"Accordingly, an object of the present invention is to provide a communication system for performing or holding videoconferences between a plurality of participants who are present at different participant locations, which comprises... control means which can be manipulated to initiate communication with other participants and to control the images displayed."</p> <p>"A central station is connected to all of the participant terminals...the central station having a programmed processor for receiving control signals from the participant terminals to control the display assembly and split screen of large and small or coarse pictures at the participant terminals individually." 2: 39-50.</p> |
| 15.7 | a high-capacity storage medium, and | "Communication system for performing a video conference among a |

| # | USP 5,625,410 | U.S. Patent No. 4,650,929 Filing date: 2/28/1985 Issue date: 3/17/1987 |
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| | programmed to perform the following functions: | <p>plurality of participants who are present at a plurality of independent locations... a central station comprising:...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations, each said video signal to be stored representing either a full screen picture or both a large picture and a small picture." Claim 1.</p> <p>"System of claim 1 wherein said video storage means are provided for storing video source signals corresponding to said large and small pictures and have a storage capacity for such a large picture and for a plurality of such small pictures." Claim 5.</p> <p>"According to the invention central stations can be equipped with any number of picture storage units and multiplexers but at least with a number needed for a single videoconference." 3: 43-47.</p> <p>"This equipment is assigned to the participating locations 25 always for the duration of video conference and it substantially comprises large picture storages 5 and small picture storages 6." 7: 12-15.</p> <p>"Parallel to large picture storage 5 a coarsened or small picture, i.e. one whose number of picture elements is two-dimensionally reduced (width and height)...and supplied to a small picture storage 6." 7: 37-43.</p> <p>FIG. 1, including Large Picture Storage 5 and accompanying text. FIG. 2, including Small Picture Storage 6 and accompanying text.</p> |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | <p>"FIGS. 8, 9 and 10 show a selection of some examples of split-screen combinations of large pictures 46(u), 46(v) and 46(w) and small pictures of 47(x), 47(y), and 47(z)." 8: 62-64.</p> <p>"At every location, also the participant's own image can be displayed as a complete or full screen picture or a mixture or split screen picture arrangement on the individual monitors." 4: 6-9.</p> <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a subscriber station at each participant location, each particular subscriber station including... video reception signal means for receiving and displaying a video reception signal at said particular station...displaying at said particular station either an individually selected full screen picture or an individually combined split screen picture of a plurality of pictures which are correspondingly smaller than full said screen picture." Claim 1.</p> <p>FIG. 1, including Monitor 27 and accompanying text. FIG. 4 and accompanying text.</p> |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>"A central station is connected to all of the participant terminals...the central station having a programmed processor for receiving control signals from the participant terminals to control the display assembly and split screen of large and small or coarse pictures at the participant terminals individually." 2: 39-50.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, | <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent</p> |

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| | and | <p>locations... a central station comprising:...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations, each said video signal to be stored representing either a full screen picture or both a large picture and a small picture." Claim 1.</p> <p>"System of claim 1 wherein said video storage means are provided for storing video source signals corresponding to said large and small pictures and have a storage capacity for such a large picture and for a plurality of such small pictures." Claim 5.</p> <p>"According to the invention central stations can be equipped with any number of picture storage units and multiplexers but at least with a number needed for a single videoconference." 3: 43-47.</p> <p>"This equipment is assigned to the participating locations 25 always for the duration of video conference and it substantially comprises large picture storages 5 and small picture storages 6." 7: 12-15.</p> <p>"Parallel to large picture storage 5 a coarsened or small picture, i.e. one whose number of picture elements is two-dimensionally reduced (width and height)...and supplied to a small picture storage 6." 7: 37-43.</p> <p>FIG. 1, including Large Picture Storage 5 and accompanying text. FIG. 2, including Small Picture Storage 6 and accompanying text.</p> |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"Communication system for performing a video conference among a plurality of participants who are present at a plurality of independent locations... a central station comprising:...video storage means for storing video signals corresponding to said video source signals received from participating subscriber stations, each said video signal to be stored representing either a full screen picture or both a large picture and a small picture." Claim 1.</p> <p>"System of claim 1 wherein said video storage means are provided for storing video source signals corresponding to said large and small pictures and have a storage capacity for such a large picture and for a plurality of such small pictures." Claim 5.</p> <p>"According to the invention central stations can be equipped with any number of picture storage units and multiplexers but at least with a number needed for a single videoconference." 3: 43-47.</p> <p>"This equipment is assigned to the participating locations 25 always for the duration of video conference and it substantially comprises large picture storages 5 and small picture storages 6." 7: 12-15.</p> <p>"Parallel to large picture storage 5 a coarsened or small picture, i.e. one whose number of picture elements is two-dimensionally reduced (width and height)...and supplied to a small picture storage 6." 7: 37-43.</p> <p>"A central station is connected to all of the participant terminals...the central station having a programmed processor for receiving control signals from the participant terminals to control the display assembly and</p> |

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| # | USP 5,625,410 | U.S. Patent No. 4,650,929 Filing date: 2/28/1985 Issue date: 3/17/1987 |
| | | split screen of large and small or coarse pictures at the participant terminals individually." 2: 39-50. FIG. 1, including Large Picture Storage 5 and accompanying text. FIG. 2, including Small Picture Storage 6 and accompanying text. |

EXHIBIT 3

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| # | USP 5,625,410 | U.S. Patent No. 4,965,819 Filing date: 9/22/1988 Issue date: 10/23/1990 |
| | Asserted claims | Kannes |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"FIG. 4A is a perspective view of an embodiment of the inventive remote module which includes a video monitor screen with six regions on the screen intended for displaying six different images comprising a composite video signal." 3: 59-63.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>FIG. 4A, 4B and accompanying text.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>"The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 4: 54-56.</p> <p>"The voice sensitive switching means will swap the component video signals of the composite signal between different regions on the PIP monitor's screen." 6: 15-18.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38..</p> <p>FIG. 2 and accompanying text.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"The other video signals received at the inputs of switching unit 118 are supplied from unit 118 to video signal compression unit 119...Unit 119 generates a composite video signal by compressing the video signals that it receives." 9: 58-64.</p> <p>FIG. 5, including Compression Unit 119 and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image in "large picture region" of monitor and several secondary images in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62 and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 37-39</p> <p>FIG. 5, including Monitors 11, 12, 13, 64a, 65a, 137 and 139 and</p> |

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| | | accompanying text. |
| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio conference record." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 17-19.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 19-26.</p> <p>FIG. 2 and accompanying text.</p> <p>FIG. 5, including Playback Records 64-66 and Storage Unit 67 and accompanying text.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"FIG. 4A is a perspective view of an embodiment of the inventive remote module which includes a video monitor screen with six regions on the screen intended for displaying six different images comprising a composite video signal." 3: 59-63.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>FIG. 4A, 4B and accompanying text.</p> |
| 12.2 | receiving video images from a plurality of sources; | <p>"The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 4: 54-56.</p> <p>"The voice sensitive switching means will swap the component video signals of the composite signal between different regions on the PIP monitor's screen." 6: 15-18.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38..</p> <p>FIG. 2 and accompanying text.</p> |
| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"The other video signals received at the inputs of switching unit 118 are supplied from unit 118 to video signal compression unit 119...Unit 119 generates a composite video signal by compressing the video signals that it receives." 9: 58-64.</p> <p>FIG. 5, including Compression Unit 119 and accompanying text.</p> |
| 12.4 | displaying at least certain of the digitized | "In FIG. 4A, the "principal" video image is displayed on the "large |

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| | images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>picture" region 200 at the upper left of monitor 210's screen. Portion 200 may cover approximately 80% of the total area of monitor 210's screen. Each of the other video camera images and the prompt occupies one of "small picture" regions..." 8: 28-33.</p> <p>"The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image in "large picture region" of monitor and several secondary images in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62 and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 37-39.</p> <p>FIG. 5, including Monitors 11, 12, 13, 64a, 65a, 137 and 139 and accompanying text. FIG. 4A and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio conference record." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 17-19.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 19-26.</p> <p>FIG. 2 and accompanying text. FIG. 5, including Playback Records 64-66 and Storage Unit 67 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"FIG. 4A is a perspective view of an embodiment of the inventive remote module which includes a video monitor screen with six regions on the screen intended for displaying six different images comprising a composite video signal." 3: 59-63.</p> |

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| | | "All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38. FIG. 4A, 4B and accompanying text. |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | "Each of video cameras 21, 22, 23, and 24 may be aimed at one of the local conferees... The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 4: 52-56. FIG. 1. |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | Means to receive the signals from each camera and digitally compress the images is Video Compression Unit 119. "The other video signals received at the inputs of switching unit 118 are supplied from unit 118 to video signal compression unit 119...Unit 119 generates a composite video signal by compressing the video signals that it receives." 9: 58-64. FIG. 5, including Compression Unit 119 and accompanying text. |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | "The control module includes a computer programmed to control the other system components, and may also include the recording unit.... The programmed computer may use the active microphone signal to generate control signals for causing the video image corresponding to the active microphone to be displayed in the large picture area of a "picture in picture" monitor." 3: 15-28. FIGS. 5-6, including Computer 68 and accompanying text. |
| 15.5 | a display screen, | "That single monitor (sometimes referred to herein as a PIP monitor) displays a composite video image representing the output of a number of video cameras..." 8: 2-4. FIG. 5, including Monitors 11, 12, 13, 64a, 65a, 137 and 139 and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and | Means to receive externally derived operator commands is control console. Means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras is "voice sensitive" switching means. "Control console may include controls such as audio volume controls, or controls for switching the assignments of the video signals between different remote module monitors (or between different PIP regions of a single remote module monitor)." 5: 20-24. "An active, voice sensitive switching means selects a video signal from any one of cameras 21-24 for display as "principal" image on principal monitor 15. The voice sensitive switching means continually updates the principal video signal selection." 5: 35-40. "...and major components of the system's control module (which is operated by technician 6)." 4: 16-18. |

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| # | USP 5,625,410 | U.S. Patent No. 4,965,819 Filing date: 9/22/1988 Issue date: 10/23/1990 |
| | | FIG. 1, including Console 25 and accompanying text. FIG. 2, including Console 19 and Technician 6 and accompanying text. |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | "The system preferably also includes a recording unit for producing a permanent, combined video and audio conference record." Abstract. "The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 17-19. "All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38. "The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 19-26. FIG. 2 and accompanying text. FIG. 5, including Playback Records 64-66 and Storage Unit 67 and accompanying text. |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | "The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract. Discloses various embodiments involving a principal video image in "large picture region" of monitor and several secondary images in "small picture regions." FIG. 4A, FIG. 4B. "The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 37-39. FIG. 5, including Monitors 11, 12, 13, 64a, 65a, 137 and 139 and accompanying text. |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | Discloses "voice sensitive video switching means" that "may be employed to select a "principal" image for display on the large picture region of a video monitor's screen" and thereby altering the image's dimensions. 8: 54-59. "The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract. Patent discloses various embodiments involving a principal video image in "large picture region" of monitor and several secondary images in "small picture regions." FIG. 4A, FIG. 4B. FIG. 5, including Monitors 11, 12, 13, 64a, 65a, 137 and 139 and accompanying text. |
| 15.10 | store the digitally compressed images | "The system preferably also includes a recording unit for producing a |

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| | in the high-capacity storage medium, and | <p>permanent, combined video and audio conference record." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 17-19.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 19-26.</p> <p>FIG. 2 and accompanying text. FIG. 5, including Playback Records 64-66 and Storage Unit 67 and accompanying text.</p> |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio conference record." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 17-19.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 35-38.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 19-26.</p> <p>FIG. 2 and accompanying text. FIG. 5, including Playback Records 64-66 and Storage Unit 67 and accompanying text.</p> |

EXHIBIT 4

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| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
| | Asserted claims | Kannes |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>FIG. 4A, 4B and accompanying text.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>"The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 5: 10-12.</p> <p>"The voice sensitive switching means will swap the component video signals of the composite signal between different regions on the PIP monitor's screen." 6: 41-44.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>FIG. 2 and accompanying text.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"The digitized video signals from circuits 400-409 are also supplied to video processors for extraction of digital chroma and luminance data." 17: 55-57.</p> <p>"In the FIG. 9 embodiment, circuit 220 receives ten video inputs. The first nine inputs are received at buffer amplifier/digitizer 400, buffer amplifier/digitizer 408, and seven buffer amplifier/digitizer circuits 401-407 (not shown in FIG. 9) identical to circuits 400 and 408." 17: 22-27.</p> <p>"The buffered output of each of the first unit gain amplifiers is digitized by an A-to-D converter within each of circuits 400-409." 17: 41-43.</p> <p>FIG. 9, including A/D Converter 400 and 408 and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image displayed in "large picture region" of monitor and several secondary images displayed in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>"The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 61-63.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62 and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> |

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| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
| | | FIG. 5, including Monitors and accompanying text. FIG. 7, including Monitors and accompanying text. |
| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio record of a conference." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 32-39.</p> <p>FIG. 2 and accompanying text. FIGS. 5 and 7, including Playback Record 64-66 and Storage Unit 67 and accompanying text.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>FIG. 4A, 4B and accompanying text.</p> |
| 12.2 | receiving video images from a plurality of sources; | <p>"The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 5: 10-12.</p> <p>"The voice sensitive switching means will swap the component video signals of the composite signal between different regions on the PIP monitor's screen." 6: 41-44.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>FIG. 2 and accompanying text.</p> |
| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"The digitized video signals from circuits 400-409 are also supplied to video processors for extraction of digital chroma and luminance data." 17: 55-57.</p> <p>"In the FIG. 9 embodiment, circuit 220 receives ten video inputs. The first nine inputs are received at buffer amplifier/digitizer 400, buffer amplifier/digitizer 408, and seven buffer amplifier/digitizer circuits 401-407 (not shown in FIG. 9) identical to circuits 400 and 408." 17: 22-27.</p> <p>"The buffered output of each of the first unit gain amplifiers is digitized by an A-to-D converter within each of circuits 400-409." 17: 41-43.</p> |

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| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
| | | FIG. 9, including A/D Converter 400 and 408 and accompanying text. |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>"In FIG. 4A, the "principal" video image is displayed on the "large picture" region 200 at the upper left of monitor 210's screen. Portion 200 may cover approximately 80% of the total area of monitor 210's screen. Each of the other video camera images and the prompt occupies one of "small picture" regions..." 8: 54-61.</p> <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image displayed in "large picture region" of monitor and several secondary images displayed in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>"The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 61-63.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62 and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>FIG. 5, including Monitors and accompanying text. FIG. 7, including Monitors and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio record of a conference." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 32-39.</p> <p>FIG. 2 and accompanying text. FIGS. 5 and 7, including Playback Record 64-66 and Storage Unit 67 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> |

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| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
| | | FIG. 4A, 4B and accompanying text. |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | "Each of video cameras 21, 22, 23, and 24 may be aimed at one of the local conferees... The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 5: 8-12. FIG. 1 and accompanying text. |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | Means to receive the signals from each camera and digitally compress the images is A/D Converters 400 and 408 and control module on cable 40. "The video signals that are output by cameras 21-24 are supplied to the control module on cable 40." 5: 10-12. "The digitized video signals from circuits 400-409 are also supplied to video processors for extraction of digital chroma and luminance data." 17: 55-57. "In the FIG. 9 embodiment, circuit 220 receives ten video inputs. The first nine inputs are received at buffer amplifier/digitizer 400, buffer amplifier/digitizer 408, and seven buffer amplifier/digitizer circuits 401-407 (not shown in FIG. 9) identical to circuits 400 and 408." 17: 22-27. "The buffered output of each of the first unit gain amplifiers is digitized by an A-to-D converter within each of circuits 400-409." 17: 41-43. FIG. 9, including A/D Converters 400 and 408 and accompanying text. |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | "The control module includes a computer programmed to control the other system components, and may also include the recording unit.... The programmed computer may use the active microphone signal to generate control signals for causing the video image corresponding to the active microphone to be displayed in a large picture area of the system's video monitors." 3: 33-46. FIGS. 5-8, including Computer 68 and accompanying text. |
| 15.5 | a display screen, | "The system includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." 2: 67 - 3: 2. "At the remote module (shown in FIG. 2), remote conferee 5 is provided with one or more video monitors (such as monitors 15, 16, 17, and 18) for viewing the output of local module cameras 21, 22, 23, and 24." 5: 13-16. FIG. 2 and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally | Means to receive externally derived operator commands is control console. "Control console may include controls such as audio volume controls, or controls for switching the assignments of the video signals between different remote module monitors." 5: 44-47. |

| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
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| | derived command, and | <p>"An active, voice sensitive switching means (such as that described below with reference to FIGS. 4-6) selects a video signal from any one of cameras 21-24 for display as "principal" image on principal monitor 15. The voice sensitive switching means continually updates the principal video signal selection." 5: 59-64.</p> <p>"...and major components of the system's control module (which is operated by technician 6)." 4: 41-43.</p> <p>FIG. 1, including Console 25 and accompanying text. FIG. 2, including Console 19 and Technician 6 and accompanying text.</p> |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio record of a conference." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 32-39.</p> <p>FIG. 2 and accompanying text. FIGS. 5 and 7, including Playback Record 64-66 and Storage Unit 67 and accompanying text.</p> |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image displayed in "large picture region" of monitor and several secondary images displayed in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>"The video and signals to be displayed on the monitors and output by the loudspeakers are supplied from cable 40 through cable 30." 4: 61-63.</p> <p>FIG. 5, including Monitors and accompanying text. FIG. 7, including Monitors and accompanying text.</p> |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>Discloses "active, voice sensitive switching means" that "may be employed to select a "principal" image for display on the large picture region of a video monitor's screen" and thereby altering the image's dimensions. 9: 29-35.</p> <p>"The system also includes a monitor for each conferee, which displays a composite video signal including a principal video image in a large</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,382,972 Filing date: 9/8/1992 Issue date: 1/17/1995 |
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| | | <p>picture region of the monitor screen and secondary video images in small picture regions of the monitor screen." Abstract.</p> <p>Discloses various embodiments involving a principal video image displayed in "large picture region" of monitor and several secondary images displayed in "small picture regions." FIG. 4A, FIG. 4B.</p> <p>FIG. 5, including Monitors and accompanying text. FIG. 7, including Monitors and accompanying text.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, and | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio record of a conference." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 32-39.</p> <p>FIG. 2 and accompanying text. FIGS. 5 and 7, including Playback Record 64-66 and Storage Unit 67 and accompanying text.</p> |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"The system preferably also includes a recording unit for producing a permanent, combined video and audio record of a conference." Abstract.</p> <p>"The recording unit may include one or more video cassette recorders ("VCRs")..." 3: 35-37.</p> <p>"All or some of the video signals arriving at the control module may be displayed on monitors 60, 61, 62, and 63 and recorded by video recording units 64, 65, and 66." 6: 58-61.</p> <p>"The other inputs of SW-1 are connected... to the output of video signal storage unit 65. Switch SW-1 selects the output of storage unit 65 in order to play back a video program stored in unit 65 to the local and remote module monitors." 11: 32-39.</p> <p>FIG. 2 and accompanying text. FIGS. 5 and 7, including Playback Record 64-66 and Storage Unit 67 and accompanying text.</p> |

EXHIBIT 5

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| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
| | Asserted claims | Kutner |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"A system for simultaneous display of multiple video windows on a display device. The system includes a primary interface for receiving a primary video signal and a primary storage memory for storing data representing the primary video signal." Abstract.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>"The present system includes a primary interface for receiving a primary video signal." 3: 3-4.</p> <p>"The present system further includes a secondary interface for receiving a plurality of secondary video signals." 3: 6-8.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"Each of video interface circuits converts the composite analog video signal to a digital video signal..." 4: 17-19.</p> <p>"Input control circuit 631 directs the processed digitized video data stream and timing information from video interface 611 to be written into FIFO memory 621." 5: 8-11.</p> <p>FIGS. 6-8, including Video Interface Circuits 610-613 and Input Control 631 and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"Buffer memory 640 is dedicated to storage of only information related to primary video imagery which is intended for display in a main window on a display monitor." 6: 26-28.</p> <p>"Buffer memory 641, on the other hand, is dedicated to storage of information related to a plurality of video images each of which is intended for display in one of the plurality of secondary windows on display monitor which are either equal or smaller in size than the main window in which the primary video imagery is displayed." 6: 28-33.</p> <p>"Video data is read at a speed appropriate for proper display on the monitor." 6: 34-35.</p> <p>"It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 - 5: 3.</p> <p>"In the preferred embodiment, the input bandwidth of the buffer memory 641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13.</p> <p>FIG. 2, 9 and accompanying text. FIG. 3-5, including Monitor 390 and accompanying text. FIG. 6-9, including Monitor 670 and accompanying text.</p> |
| 8.5 | simultaneously storing the displayed | "...a primary video interface (video interface 610) and primary buffer |

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| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
| | images using a second, predetermined frame rate and resolution associated with each image. | memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65. "A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4. "It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 - 5: 3. "In the preferred embodiment, the input bandwidth of the buffer memory 641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13. FIG. 6, including Video Interfaces 610-613 and Buffer Memories 640 and 641 and accompanying text. FIG. 7, including Buffer Memories 640 and 641 and accompanying text. FIG. 8, including Buffer Memories 640 and 641 and accompanying text. |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | "A system for simultaneous display of multiple video windows on a display device. The system includes a primary interface for receiving a primary video signal and a primary storage memory for storing data representing the primary video signal." Abstract. "...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65. "A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4. |
| 12.2 | receiving video images from a plurality of sources; | "The present system includes a primary interface for receiving a primary video signal." 3: 3-4. "The present system further includes a secondary interface for receiving a plurality of secondary video signals." 3: 6-8. |
| 12.3 | digitizing one or more of the images if not already in digital form; | "Each of video interface circuits converts the composite analog video signal to a digital video signal..." 4: 17-19. "Input control circuit 631 directs the processed digitized video data stream and timing information from video interface 611 to be written into FIFO memory 621." 5: 8-11. FIG. 6-8, including Video Interface Circuits 610-613 and Input Control 631 and accompanying text. |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | Discloses display of primary video image in "main" window on display monitor. Plurality of secondary video signals are stored in secondary windows. "Each of the secondary windows is smaller in area than the main video window." 8: 39-41. |

| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
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| | | <p>"It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 – 5: 3.</p> <p>"In the preferred embodiment, the input bandwidth of the buffer memory 641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13.</p> <p>FIG. 2, 9 and accompanying text. FIG. 3-5, including Monitor 390 and accompanying text. FIG. 6-9, including Monitor 670 and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>Discloses that "video interfaces 611, 612, and 613 must reduce the size of the video image to be displayed... such that the total bandwidth does not exceed the bandwidth capacity of the buffer memory 641." 6: 14-18.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> <p>"It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 – 5: 3.</p> <p>"In the preferred embodiment, the input bandwidth of the buffer memory 641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13.</p> <p>FIG. 6, including Video Interfaces 610-613 and Buffer Memories 640 and 641 and accompanying text. FIG. 7, including Buffer Memories 640 and 641 and accompanying text. FIG. 8, including Buffer Memories 640 and 641 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"A system for simultaneous display of multiple video windows on a display device. The system includes a primary interface for receiving a primary video signal and a primary storage memory for storing data representing the primary video signal." Abstract.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video | Discloses the receipt of multiple video signals by the video interface circuits. |

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| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
| | image; | FIG. 3-6, including Video Interface Circuits and accompanying text. |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | Means to receive the signals from each camera and digitally compress the images is Video Interface Circuits. "...a primary video interface and primary buffer memory are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65. "A plurality of secondary video interfaces and a buffer memory are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4. "Each of video interface circuits converts the composite analog video signal to a digital video signal..." 4: 17-19. "Input control circuit 631 directs the processed digitized video data stream and timing information from video interface 611 to be written into FIFO memory 621." 5: 8-11. FIG. 3-8, including Video Interface Circuits and accompanying text. FIG. 6-8, including Input Control 631 and accompanying text. |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | System discloses "control processor" which "stores data in output control memory which determines for each pixel on the display monitor whether to output the contents of buffer memory 640 or buffer memory 641." 6: 45-49. FIG. 6-8, including Control Processor 690 and accompanying text. |
| 15.5 | a display screen, | "...representing a primary video image which it is desired to have displayed in the largest of a plurality of windows displayed on a single display device, monitor 670." 3: 65 - 4: 1. "The video signal J applied to the input of video interface 610 corresponds to an image which it is desired to have appear in the largest of the multiple windows which will be displayed on the single display monitor 670." 4: 28-30. FIG. 2, 9 and accompanying text. FIG. 3-5, including Monitor 390 and accompanying text. FIG. 6-9, including Monitor 670 and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and | To the extent the reference does not explicitly disclose means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, this limitation is inherent in this disclosure. |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | "It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 - 5: 3. |

| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
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| | | <p>"In the preferred embodiment, the input bandwidth of the buffer memory 641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> <p>FIG. 6, including Video Interfaces 610-613 and Buffer Memories 640 and 641 and accompanying text. FIG. 7, including Buffer Memories 640 and 641 and accompanying text. FIG. 8, including Buffer Memories 640 and 641 and accompanying text.</p> |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | <p>"...and for outputting primary pixel values representing said primary window;...and for outputting secondary pixel values representing said secondary video windows;" Claim 1.</p> <p>"...primary video imagery which is intended for display in a main window on a display monitor." 6: 27-28.</p> <p>"...a plurality of video images each of which is intended for display in one of the plurality of secondary windows on display monitor..." 6: 29-32.</p> <p>"It will be noted that the video interface circuits 610, 611, 612, and 613 may be utilized to process the digital video signal by adding or dropping video pixels to increase or decrease the size of the digitized video image or images." 4: 20-24.</p> <p>"...the position of the live video image on the display monitor can be controlled since each address location corresponds to a particular pixel, or pixels, on the monitor." 4: 47-50.</p> <p>FIG. 2, 9 and accompanying text. FIG. 3-5, including Monitor 390 and accompanying text. FIG. 6-9, including Monitor 670 and accompanying text.</p> |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>"A system for simultaneous display of multiple video windows on a display device. The system includes a primary interface for receiving a primary video signal and a primary storage memory for storing data representing the primary video signal." Abstract.</p> <p>To the extent the reference does not explicitly disclose externally derived operator commands, this limitation is inherent in this disclosure.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, and | <p>"It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 – 5: 3.</p> <p>"In the preferred embodiment, the input bandwidth of the buffer memory</p> |

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| # | USP 5,625,410 | U.S. Patent No. 5,642,498 Filing date: 4/12/1994 Issue date: 6/24/1997 |
| | | <p>641 is sufficiently large that it can accommodate the data rate requirements of one live video window of any size." 6: 10-13.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> <p>FIG. 6, including Video Interfaces 610-613 and Buffer Memories 640 and 641 and accompanying text.</p> <p>FIG. 7, including Buffer Memories 640 and 641 and accompanying text.</p> <p>FIG. 8, including Buffer Memories 640 and 641 and accompanying text.</p> |
| 15.11 | <p>vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands.</p> | <p>"It will be noted that the input bandwidth of buffer memory 640 is preferably sufficiently large that it can accommodate the data rate required to display any size live video window on the display monitor." 4: 66 – 5: 3.</p> <p>"...a primary video interface (video interface 610) and primary buffer memory (buffer memory 640) are dedicated to receiving and storing the input of a primary video signal..." 3: 62-65.</p> <p>"A plurality of secondary video interfaces (video interfaces 610, 611, 612, and 613) and a buffer memory (buffer memory 641) are dedicated to receiving and storing the input of a plurality of video signals..." 4: 1-4.</p> <p>FIG. 6, including Video Interfaces 610-613 and Buffer Memories 640 and 641 and accompanying text.</p> <p>FIG. 7, including Buffer Memories 640 and 641 and accompanying text.</p> <p>FIG. 8, including Buffer Memories 640 and 641 and accompanying text.</p> <p>To the extent the reference does not explicitly disclose externally derived operator commands, this limitation is inherent in this disclosure.</p> |

EXHIBIT 6

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| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
| | Asserted claims | Lobodzinski |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>FIG. 1 and accompanying text.</p> |
| 8.2 | receiving video images from a plurality of sources; | Discloses plurality of video streams retrieved from compressed (archived) video data from the mass storage device. |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"The VP 1 digitizes the analog RF signal 35, performs video compression, and then stores the data to the mass storage device 7." 10: 14-16.</p> <p>"In one application, the [Ultrasound] has the capability of digitizing the MVTs [Motion Video Transformation System] analog video output signal in A/D converter shown in FIG. 2 for subsequent display on the internal display monitor." 10: 33-36.</p> <p>"The video signal 14 can be generated in either analog or digital format." 8: 12-13.</p> <p>FIG. 1, including VP [Video Processor] 1 and accompanying text. FIG. 2, including AD Converter 33 and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"Each display window stream may also be displayed at a different frame rate." 12: 62-64.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>"The MVTs comprises components or subsystems that operate to:...(4) enhance the display of video data through spatial and temporal domain processing." 6: 2-9.</p> <p>"The side-by-side display of diagnostic video in scalable windows in the system of the present invention can accommodate more than four independent bit streams played back directly from the storage media..." 5: 30-33.</p> <p>"Another component comprises a video display processor which allows for display of multiple digital motion video streams in respective scalable windows." 6: 46-48.</p> <p>FIG. 1-2, including Video Display Processor 1 and Monitor 13 and accompanying text. FIG. 6 and accompanying text. FIG. 8 and accompanying text.</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
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| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"The computer combines this information with compressed video data prior to storage to the mass storage device." 14: 33-35.</p> <p>"The US 200 is also capable of archiving uncompressed digital video to an archival storage unit 30." 10: 8-9.</p> <p>"Video streams may be recorded at different frame rates depending upon the DIS (Diagnostic Imaging System) 17." 13: 58-59.</p> <p>FIG. 1, including Mass Storage Device 7 and accompanying text. FIG. 2, including Archival Storage Unit 30 and accompanying text.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>FIG. 1 and accompanying text.</p> |
| 12.2 | receiving video images from a plurality of sources; | Discloses plurality of video streams retrieved from compressed (archived) video data from the mass storage device. |
| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"The VP 1 digitizes the analog RF signal 35, performs video compression, and then stores the data to the mass storage device 7." 10: 14-16.</p> <p>"In one application, the [Ultrasound] has the capability of digitizing the MTVS [Motion Video Transformation System] analog video output signal in A/D converter shown in FIG. 2 for subsequent display on the internal display monitor." 10: 33-36.</p> <p>"The video signal 14 can be generated in either analog or digital format." 8: 12-13.</p> <p>FIG. 1, including VP [Video Processor] 1 and accompanying text. FIG. 2, including AD Converter 33 and accompanying text.</p> |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>"Each display window stream may also be displayed at a different frame rate." 12: 62-64.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>"The MVTS comprises components or subsystems that operate to:...(4)</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
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| | | <p>enhance the display of video data through spatial and temporal domain processing." 6: 2-9.</p> <p>"The side-by-side display of diagnostic video in scalable windows in the system of the present invention can accommodate more than four independent bit streams played back directly from the storage media..." 5: 30-33.</p> <p>"Another component comprises a video display processor which allows for display of multiple digital motion video streams in respective scalable windows." 6: 46-48.</p> <p>FIG. 1-2, including Video Display Processor and Monitor 13 and accompanying text. FIG. 6 and accompanying text. FIG. 8 and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"The computer combines this information with compressed video data prior to storage to the mass storage device." 14: 33-35.</p> <p>"The US 200 is also capable of archiving uncompressed digital video to an archival storage unit 30." 10: 8-9.</p> <p>"Video streams may be recorded at different frame rates depending upon the DIS (Diagnostic Imaging System) 17." 13: 58-59.</p> <p>FIG. 1, including Mass Storage Device 7 and accompanying text. FIG. 2, including Archival Storage Unit 30 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>FIG. 1 and accompanying text.</p> |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | <p>Discloses plurality of video streams retrieved from compressed (archived) video data from the mass storage device.</p> <p>To the extent the reference does not explicitly disclose a plurality of video cameras, this limitation is inherent in this disclosure.</p> |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | Means to receive the signals from each camera and digitally compress the images is Video Processor 1, Video Transformation 47, and AD Converter 33. |

| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
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| | | <p>"According to the present invention, a video signal in any of analog input formats, or the digital input format, generated by the US, is passed via the buffer, the source selector, and the input video bus to the VT 47 for compression... The decompressed digital output is then forwarded to the VDP 10." 11: 32-49.</p> <p>"The VP 1 digitizes the analog RF signal 35, performs video compression, and then stores the data to the mass storage device 7." 10: 14-16.</p> <p>"In one application, the [Ultrasound] has the capability of digitizing the MTVS [Motion Video Transformation System] analog video output signal in A/D converter shown in FIG. 2 for subsequent display on the internal display monitor." 10: 33-36.</p> <p>"The video signal 14 can be generated in either analog or digital format." 8: 12-13.</p> <p>FIG. 1, including VP [Video Processor] 1 and accompanying text. FIG. 2, including AD Converter 33 and accompanying text. FIG. 3, including Video Transformation 47 and accompanying text.</p> |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | <p>"The computer, in its preferred embodiment, is a standard original equipment manufacturer's computer, with the following..." 9: 13-15.</p> <p>Discloses computer connected to "video processor" that receives and compresses the video signal.</p> <p>FIGS. 1 & 9, including Computer 6 and accompanying text.</p> |
| 15.5 | a display screen, | <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>FIG. 1, including Monitor 13 and accompanying text. FIG. 2, including Display Monitor 25 and accompanying text.</p> |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and | <p>Means to receive externally derived operator commands is Control Output Interface 4.</p> <p>"...the selection of a record button will begin the archiving of the digital video with underlying audio, physiological signs, and timing EEG marks to the mass storage device. The recording will continue until the selection of a stop button or a stop issued by the control output interface 4." 11: 59-64.</p> <p>"The playback of compressed digital video and audio from the storage media starts with the selection of a play button and continues until a stop button is selected or a stop control signal issued by the control output interface." 12: 3-6.</p> <p>FIGS. 1-2, including Control Output Interface 4 and accompanying text.</p> |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
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| | | <p>"The computer combines this information with compressed video data prior to storage to the mass storage device." 14: 33-35.</p> <p>"The US 200 is also capable of archiving uncompressed digital video to an archival storage unit 30." 10: 8-9.</p> <p>"Video streams may be recorded at different frame rates depending upon the DIS (Diagnostic Imaging System) 17." 13: 58-59.</p> <p>FIG. 1, including Mass Storage Device 7 and accompanying text. FIG. 2, including Archival Storage Unit 30 and accompanying text.</p> |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | <p>"If more than one selection has been made, the MTVS will automatically adjust the display area to accommodate the selected video streams representing the diagnostic studies." 12: 39-42.</p> <p>"Each display window stream may also be displayed at a different frame rate." 12: 62-64.</p> <p>"A multiple video stream display is shown in FIG 6." 12: 43-44.</p> <p>"...a plurality of digital video streams can be displayed simultaneously on the internal display monitor or the external display monitor." 12: 54-56.</p> <p>"The MTVS comprises components or subsystems that operate to...(4) enhance the display of video data through spatial and temporal domain processing." 6: 2-9.</p> <p>"The side-by-side display of diagnostic video in scalable windows in the system of the present invention can accommodate more than four independent bit streams played back directly from the storage media..." 5: 30-33.</p> <p>"Another component comprises a video display processor which allows for display of multiple digital motion video streams in respective scalable windows." 6: 46-48.</p> <p>FIG. 1-2, including Video Display Processor 1 and Monitor 13 and accompanying text. FIG. 6. and accompanying text. FIG. 8. and accompanying text.</p> |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>Discloses "playback process" which is initiated by "software generated control buttons." "The playback modes include slow motion (inter frame interval longer than at the time of recording) and fast motion (inter frame interval shorter than at the time of recording)." 12: 7-16.</p> <p>"...the selection of a record button will begin the archiving of the digital video with underlying audio, physiological signs, and timing EEG marks to the mass storage device. The recording will continue until the selection of a stop button or a stop issued by the control output interface 4." 11: 59-64.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, | Discloses a "mass storage device" where the compressed video data is stored. 5: 42; 6: 10; 7: 8; 9: 27; 11: 42; 11: 62; 13: 23; 14: 44. |

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| # | USP 5,625,410 | U.S. Patent No. 5,619,995 Filing date: 6/14/1994 Issue date: 4/15/1997 |
| | and | FIG. 1, including Mass Storage Device 7 and accompanying text. |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"A motion video system and method for use... for combining the acquisition, display, and processing of digital video in real-time... through the use of a mass storage device and digital motion video data compression/decompression." Abstract.</p> <p>"The computer combines this information with compressed video data prior to storage to the mass storage device." 14: 33-35.</p> <p>"The US 200 is also capable of archiving uncompressed digital video to an archival storage unit 30." 10: 8-9.</p> <p>"Video streams may be recorded at different frame rates depending upon the DIS (Diagnostic Imaging System) 17." 13: 58-59.</p> <p>"...the selection of a record button will begin the archiving of the digital video with underlying audio, physiological signs, and timing EEG marks to the mass storage device. The recording will continue until the selection of a stop button or a stop issued by the control output interface 4." 11: 59-64.</p> <p>FIG. 1, including Mass Storage Device 7 and accompanying text. FIG. 2, including Archival Storage Unit 30 and accompanying text.</p> |

EXHIBIT 7

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| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
| | Asserted claims | Gormley |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"Monitoring apparatus for a security system comprises a monitor and twelve video cameras." Abstract.</p> <p>"The crux of the present invention is the generation... of a plurality of complete images of different sizes as a single composite picture on a single monitor..." 2: 37-40.</p> <p>"In some forms of security system...the system will also include a video storage unit." 4: 57-59.</p> <p>FIG. 1A and accompanying text.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>Discloses invention featuring 12 video cameras, each submitting its own video signal to be displayed on a single monitor.</p> <p>"In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29.</p> <p>"12 cameras C1 to C12 are directed at locations of interest, and feed 12 input channels of an effects module 20, which in turn feeds the monitor 21." 7: 3-6.</p> <p>FIG. 2, including C1-C12 and accompanying text.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract.</p> <p>"The effects module comprises a video compression unit 23...Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit." 7: 13-16.</p> <p>FIG. 2 and accompanying text.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"Selection means 25 select any desired one of the camera outputs for display as the large image." Abstract.</p> <p>"In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29.</p> <p>"The usual mode of operation of the system will generally be a simple select mode, in which there are 12 (at most) video sources each displayed as a corresponding small image, with selection means operating to permit the duplication of the selected image in the large zone." 4: 44-49.</p> <p>"The effects module 20 comprises a video compression unit 23 and a read/write buffer 24. Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit. The first 12 sections of unit 23 are identical, and each compresses the incoming signal by a ratio of 16:1 (corresponding to the 4:1 linear size reduction of the small image zones). The final section compresses the incoming signal by a ratio of 4:1 (corresponding to the 2:1 linear size reduction of the large image zone)." 7:13-21.</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
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| | | Discloses several alternative arrangements regarding the window size and number of the video images displayed on the single monitor, all of which contain a "central large zone" (i.e., a particular image that has been chosen to be the large image). 2: 37 – 3: 24. FIGS. 1 and 1A and accompanying text. FIG. 2, including SEL 25 and accompanying text. FIG. 2, including Mon Z1, 32, 33 and 42 and accompanying text. |
| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | "An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract. "In some forms of security system...the system will also include a video image storage unit." 4: 57-59. "...the effects unit 20 could contain a set of 12 separate memories, one for each camera." 8: 4-5. "The output of the video recorder is passed, via a monitor 42, to the stills unit 31. This permits an image recorded by the system to be copied into the stills unit for future reference." 9: 22-25. FIG. 2 and accompanying text. |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | "Monitoring apparatus for a security system comprises a monitor and twelve video cameras." Abstract. "The crux of the present invention is the generation... of a plurality of complete images of different sizes as a single composite picture on a single monitor..." 2: 37-40. "In some forms of security system...the system will also include a video storage unit." 4: 57-59. FIG. 1A and accompanying text. |
| 12.2 | receiving video images from a plurality of sources; | Discloses invention featuring 12 video cameras, each submitting its own video signal to be displayed on a single monitor. "In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29. "12 cameras C1 to C12 are directed at locations of interest, and feed 12 input channels of an effects module 20, which in turn feeds the monitor 21." 7: 3-6. FIG. 2, including C1-C12 and accompanying text. |
| 12.3 | digitizing one or more of the images if not already in digital form; | "An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract. "The effects module comprises a video compression unit 23...Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit." 7: 13-16. |

| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
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| | | FIG. 2 and accompanying text. |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>"Selection means 25 select any desired one of the camera outputs for display as the large image." Abstract.</p> <p>"In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29.</p> <p>"The usual mode of operation of the system will generally be a simple select mode, in which there are 12 (at most) video sources each displayed as a corresponding small image, with selection means operating to permit the duplication of the selected image in the large zone." 4: 44-49.</p> <p>"The effects module 20 comprises a video compression unit 23 and a read/write buffer 24. Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit. The first 12 sections of unit 23 are identical, and each compresses the incoming signal by a ratio of 16:1 (corresponding to the 4:1 linear size reduction of the small image zones). The final section compresses the incoming signal by a ratio of 4:1 (corresponding to the 2:1 linear size reduction of the large image zone)." 7:13-21.</p> <p>Discloses several alternative arrangements regarding the window size and number of the video images displayed on the single monitor, all of which contain a "central large zone" (i.e., a particular image that has been chosen to be the large image). 2: 37 - 3: 24.</p> <p>FIGS. 1 and 1A and accompanying text. FIG. 2, including SEL 25 and accompanying text. FIG. 2, including Mon Z1, 32, 33 and 42 and accompanying text.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>"An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract.</p> <p>"In some forms of security system...the system will also include a video image storage unit." 4: 57-59.</p> <p>"...the effects unit 20 could contain a set of 12 separate memories, one for each camera." 8: 4-5.</p> <p>"The output of the video recorder is passed, via a monitor 42, to the stills unit 31. This permits an image recorded by the system to be copied into the stills unit for future reference." 9: 22-25.</p> <p>FIG. 2 and accompanying text.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"Monitoring apparatus for a security system comprises a monitor and twelve video cameras." Abstract.</p> <p>"The crux of the present invention is the generation... of a plurality of complete images of different sizes as a single composite picture on a single monitor..." 2: 37-40.</p> |

| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
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| | | "In some forms of security system...the system will also include a video storage unit." 4: 57-59. FIG. 1A |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | Discloses invention featuring 12 video cameras, each submitting its own video signal to be displayed on a single monitor. "In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29. "12 cameras C1 to C12 are directed at locations of interest, and feed 12 input channels of an effects module 20, which in turn feeds the monitor 21." 7: 3-6. FIG. 2, including C1-C12 and accompanying text. |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | Means to receive the signals from each camera and digitally compress the images is Effects Module 20 and Video Compression Unit 23. "12 cameras C1 to C12 are directed at locations of interest, and feed 12 input channels of an effects module 20, which in turn feeds the monitor 21." 7: 3-7. "An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract. "The effects module comprises a video compression unit 23...Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit." 7: 13-16. FIG. 2 and accompanying text. |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | "The effects module 20 comprises a video compression unit 23." 7: 13-14. "12 cameras C1 to C12 are directed at locations of interest, and feed 12 input channels of an effects module 20, which in turn feeds the monitor 21." 7: 3-6. "The effects module 20 is also coupled to a video recorder 31 via date and time stamp unit 30." 9: 9-10. FIG. 2 |
| 15.5 | a display screen, | Discloses a "single monitor" upon which all images are displayed. 2: 2; 2: 40. FIG. 2, including Mon Z1, 32, 33, and 42 and accompanying text. |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally | Means to receive externally derived operator commands is "selection means" which "may include a so-called "touch screen" control device attached directly over the video display screen." 4: 36-38. Specification notes it may become necessary for security officer to investigate suspicious activity on the monitor screen. Thus, patent provides for "selection means for selecting any desired of the small |

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| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
| | derived command, and | images for display in the large area." 4: 33-35. "Touch screen" control device allows the security officer to "literally point his finger" at suspect individual on small image and thereby see that image duplicated on the central large image. 4: 36-43. |
| 15.7 | a high-capacity storage medium, and programmed to perform the following functions: | "An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract. "In some forms of security system...the system will also include a video image storage unit." 4: 57-59. "...the effects unit 20 could contain a set of 12 separate memories, one for each camera." 8: 4-5. "The output of the video recorder is passed, via a monitor 42, to the stills unit 31. This permits an image recorded by the system to be copied into the stills unit for future reference." 9: 22-25. FIG. 2 and accompanying text. |
| 15.8 | display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels, | Discloses a "touch screen" control device (attached directly over monitor) that allows the security officer to "literally point his finger" at suspect individual on small image and thereby see that image duplicated on the central large image. 4: 36-43. "Selection means 25 select any desired one of the camera outputs for display as the large image." Abstract. "In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29. "The usual mode of operation of the system will generally be a simple select mode, in which there are 12 (at most) video sources each displayed as a corresponding small image, with selection means operating to permit the duplication of the selected image in the large zone." 4: 44-49. "The effects module 20 comprises a video compression unit 23 and a read/write buffer 24. Unit 23 comprises 13 sections, corresponding to the 13 input channels to the effects unit. The first 12 sections of unit 23 are identical, and each compresses the incoming signal by a ratio of 16:1 (corresponding to the 4:1 linear size reduction of the small image zones). The final section compresses the incoming signal by a ratio of 4:1 (corresponding to the 2:1 linear size reduction of the large image zone)." 7:13-21. Discloses several alternative arrangements regarding the window size and number of the video images displayed on the single monitor, all of which contain a "central large zone" (i.e., a particular image that has been chosen to be the large image). 2: 37 - 3: 24. FIGS. 1 and 1A and accompanying text. FIG. 2, including SEL 25, Mon Z1, 32, 33 and 42 and accompanying |

| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
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| | | text. |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | <p>Discloses ability for security officer, via touch control device, rendering a small image to be duplicated in the large central area (i.e., made into a larger image).</p> <p>"Selection means 25 select any desired one of the camera outputs for display as the large image." Abstract.</p> <p>"In a security system, the system will comprise the video monitoring apparatus and will also include a number of video cameras... and providing the pictures to be displayed on the monitor." 4: 25-29.</p> <p>"The usual mode of operation of the system will generally be a simple select mode, in which there are 12 (at most) video sources each displayed as a corresponding small image, with selection means operating to permit the duplication of the selected image in the large zone." 4: 44-49.</p> <p>Discloses several alternative arrangements regarding the window size and number of the video images displayed on the single monitor, all of which contain a "central large zone" (i.e., a particular image that has been chosen to be the large image). 2: 37 - 3: 24.</p> <p>FIGS. 1 and 1A and accompanying text. FIG. 2, including SEL 25, Mon Z1, 32, 33 and 42 and accompanying text.</p> |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, and | <p>"An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract.</p> <p>"In some forms of security system...the system will also include a video image storage unit." 4: 57-59.</p> <p>"...the effects unit 20 could contain a set of 12 separate memories, one for each camera." 8: 4-5.</p> <p>"The output of the video recorder is passed, via a monitor 42, to the stills unit 31. This permits an image recorded by the system to be copied into the stills unit for future reference." 9: 22-25.</p> <p>FIG. 2 and accompanying text.</p> |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | <p>"The video recorder may either be permanently running or operated under the control of the operator when an event of interest occurs." 9: 19-21.</p> <p>"An effects unit 20 includes a buffer memory 24 and a set of 13 video compression units 23." Abstract.</p> <p>"In some forms of security system...the system will also include a video image storage unit." 4: 57-59.</p> <p>"...the effects unit 20 could contain a set of 12 separate memories, one for each camera." 8: 4-5.</p> |

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| # | USP 5,625,410 | U.S. Patent No. 5,258,837 Filing date: 10/19/1992 Issue date: 11/2/1993 |
| | | <p>"The output of the video recorder is passed, via a monitor 42, to the stills unit 31. This permits an image recorded by the system to be copied into the stills unit for future reference." 9: 22-25.</p> <p>FIG. 2 and accompanying text.</p> |

EXHIBIT 8

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| # | USP 5,625,410 | "Automated Video Surveillance – Teaching an Old Dog New Tricks" SPIE Vol. 1989 Publication Date: 12/17/1993 |
| | Asserted claims | McLeod |
| 8.1 | 8. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"An AVS [automated video surveillance] system with multiple image capture and storage provides the ultimate in flexibility for time-lapse recording." 237.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"Essential features include:...Storage of pre- and post-alarm images." 237.</p> |
| 8.2 | receiving video images from a plurality of sources; | <p>"Essential features include:...Multiple camera handling." 237.</p> <p>"All systems have to cope with multiple camera inputs. Most systems do this using some kind of video multiplexer unit between the cameras and the image capture software... This rather expensive way of doing things permits full parallel processing of the video camera channels if the system is equipped with multiple processors." 233.</p> |
| 8.3 | digitizing one or more of the images if not already in digital form; | <p>"Essential features include:...Built-in image compression." 237.</p> <p>"When an AVS system offers the option of storing video frames from alarm events, these are stored in digital form and will not degrade with repeated overwriting or copying." 236.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"Alarm images may be automatically compressed before storing on hard-disk, so that a large number of images can be stored." 236.</p> |
| 8.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first, predetermined frame rate and resolution associated with each window; and | <p>"Essential features include:...High image quality (better than 400 x 300 x 8 bit)." 237.</p> <p>"PC-based systems have a significant advantage in the availability of low-cost interface and control boards, peripheral equipment (disk drives, monitors, etc.) and software tools." 233.</p> <p>"All AVS systems must provide a method of defining one or more windows or areas of interest in an image...Multiple overlapping windows are essential." 233.</p> <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"A large proportion of these installations will therefore require automated processing to reduce operating costs and increase effectiveness and reliability." 231.</p> <p>"Both the spatial and greyscale resolution of the captured images are</p> |

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| # | USP 5,625,410 | <p>"Automated Video Surveillance – Teaching an Old Dog New Tricks" SPIE Vol. 1989 Publication Date: 12/17/1993</p> |
| | | important... The quality of imaging hardware is certainly controllable and must be of a sufficiently good standard, with the spatial resolution mentioned above and an 8-bit greyscale resolution." 236. |
| 8.5 | simultaneously storing the displayed images using a second, predetermined frame rate and resolution associated with each image. | <p>"An AVS [automated video surveillance] system with multiple image capture and storage provides the ultimate in flexibility for time-lapse recording." 237.</p> <p>"Essential features include:...High image quality (better than 400 x 300 x 8 bit)...Storage of pre- and post-alarm images." 237.</p> <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"A full image database facility with search functions is an important part of a comprehensive AVS-based security system." 236.</p> <p>"Both the spatial and greyscale resolution of the captured images are important... The quality of imaging hardware is certainly controllable and must be of a sufficiently good standard, with the spatial resolution mentioned above and an 8-bit greyscale resolution." 236.</p> <p>"A large proportion of these installations will therefore require automated processing to reduce operating costs and increase effectiveness and reliability." 231.</p> |
| 12.1 | 12. The method of simultaneously displaying and storing multiple video images, comprising the steps of: | <p>"An AVS system with multiple image capture and storage provides the ultimate in flexibility for time-lapse recording." 237.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"All AVS systems must provide a method of defining one or more windows or areas of interest in an image...Multiple overlapping windows are essential." 233.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"Essential features include:...Storage of pre- and post-alarm images." 237.</p> |
| 12.2 | receiving video images from a plurality of sources; | <p>"Essential features include:...Multiple camera handling." 237.</p> <p>"All systems have to cope with multiple camera inputs. Most systems do this using some kind of video multiplexer unit between the cameras and the image capture software... This rather expensive way of doing things permits full parallel processing of the video camera channels if the system is equipped with multiple processors." 233.</p> |

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| 12.3 | digitizing one or more of the images if not already in digital form; | <p>"Essential features include:...Built-in image compression." 237.</p> <p>"When an AVS system offers the option of storing video frames from alarm events, these are stored in digital form and will not degrade with repeated overwriting or copying." 236.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"Alarm images may be automatically compressed before storing on hard-disk, so that a large number of images can be stored." 236.</p> |
| 12.4 | displaying at least certain of the digitized images in separate windows on a display device, using a first set of temporal and spatial parameters associated with each image in each window; | <p>"A large proportion of these installations will therefore require automated processing to reduce operating costs and increase effectiveness and reliability." 231.</p> <p>"PC-based systems have a significant advantage in the availability of low-cost interface and control boards, peripheral equipment (disk drives, monitors, etc.) and software tools." 233.</p> <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"All AVS systems must provide a method of defining one or more windows or areas of interest in an image...Multiple overlapping windows are essential." 233.</p> <p>"Both the spatial and greyscale resolution of the captured images are important...The quality of imaging hardware is certainly controllable and must be of a sufficiently good standard, with the spatial resolution mentioned above and an 8-bit greyscale resolution." 236.</p> |
| 12.5 | simultaneously storing the displayed images using a second set of temporal and spatial parameters associated with each image. | <p>An AVS [automated video surveillance] system with multiple image capture and storage provides the ultimate in flexibility for time-lapse recording." 237.</p> <p>"Essential features include:...High image quality (better than 400 x 300 x 8 bit)...Storage of pre- and post-alarm images." 237.</p> <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"A full image database facility with search functions is an important part of a comprehensive AVS-based security system." 236.</p> <p>"Both the spatial and greyscale resolution of the captured images are important...The quality of imaging hardware is certainly controllable and</p> |

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| | | <p>must be of a sufficiently good standard, with the spatial resolution mentioned above and an 8-bit greyscale resolution." 236.</p> <p>"A large proportion of these installations will therefore require automated processing to reduce operating costs and increase effectiveness and reliability." 231.</p> |
| 15.1 | 15. A video storage and display system, comprising: | <p>"An AVS system with multiple image capture and storage provides the ultimate in flexibility for time-lapse recording." 237.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"Essential features include:...Storage of pre- and post-alarm images." 237.</p> |
| 15.2 | a plurality of video cameras, each outputting a signal representative of a video image; | <p>"Essential features include:...Multiple camera handling." 237.</p> <p>"All systems have to cope with multiple camera inputs. Most systems do this using some kind of video multiplexer unit between the cameras and the image capture software... This rather expensive way of doing things permits full parallel processing of the video camera channels if the system is equipped with multiple processors." 233.</p> |
| 15.3 | means to receive the signals from each camera and digitally compress the images; and | <p>Means to receive the signals from each camera and digitally compress the images is "built-in image compression" functionality.</p> <p>"Essential features include:...Built-in image compression." 237.</p> <p>"When an AVS system offers the option of storing video frames from alarm events, these are stored in digital form and will not degrade with repeated overwriting or copying." 236.</p> <p>"The whole sequence of alarm image capture, compression, storage and return to monitoring must run very quickly." 236.</p> <p>"Alarm images may be automatically compressed before storing on hard-disk, so that a large number of images can be stored." 236.</p> |
| 15.4 | a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices: | <p>"Today there is a definite trend towards the use of standard PC-based processing platforms for AVS, exploiting the wide range of software and hardware which is available for the PC." 230.</p> <p>"In this way, several surveillance sites can be operated via modem from a single remotely-located PC, with automatic call-up in the event of an alarm." 236.</p> |
| 15.5 | a display screen, | <p>"AVS systems can be applied to almost any situation where CCTV cameras are currently used to overlook or monitor an indoor or outdoor scene." 238.</p> |
| 15.6 | means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at | <p>Means to receive externally derived operator commands is "[s]imple operator interface" functionality.</p> <p>Means for sensing a deviation from the normal-state image scene</p> |

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| | <p>least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and</p> | <p>associated with at least one of the video cameras is "[a]utomatic event logging and alarm generation" functionality.</p> <p>"Essential features include:...Automatic event logging and alarm generation...Simple operator interface." 237.</p> <p>"The basic purpose of an AVS system is to detect alarm events, however they are defined... An alarm event must be detectable by some kind of change in the sequence of images captured of the scene. The event itself is usually an object appearing in, or disappearing from, the field of view or area of interest." 233.</p> <p>"The actual processing algorithms used in the more sophisticated AVS system to detect real events and ignore normal movement are a closely-guarded secret, and little published information is available. Many of these algorithms have been developed in military research programmes for target identification and target tracking." 234.</p> <p>"More generally, it can be of interest to note the behaviour of an object within the scene. This type of analysis notes the position of each change and links them to previous changes. Thus the point of entry of an object in the scene can be noted and/or its point of exist. In this way specific types of behavior can be defined as alarm situations with a high degree of discrimination." 234.</p> <p>"This performance trade-off can be optimised if the AVS system is sufficiently flexible, i.e. if the system has several methods of scene analysis and criteria for detecting alarm situations." 234.</p> |
| 15.7 | <p>a high-capacity storage medium, and programmed to perform the following functions:</p> | <p>"Essential features include:...Storage of pre- and post-alarm images." 237.</p> <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236.</p> <p>"These [AVS] systems include storage of multiple alarm-images, remote control, detection of non-motion and sophisticated methods of compensation for environmental changes." 230.</p> <p>"A full image database facility with search functions is an important part of a comprehensive AVS-based security system." 236.</p> |
| 15.8 | <p>display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels,</p> | <p>"The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238.</p> <p>"PC-based systems have a significant advantage in the availability of low-cost interface and control boards, peripheral equipment (disk drives,</p> |

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| | | monitors, etc.) and software tools." 233. "All AVS systems must provide a method of defining one or more windows or areas of interest in an image...Multiple overlapping windows are essential." 233. |
| 15.9 | vary the dimensions and the rate at which a particular image is updated in its window in accordance with one of the externally derived commands, | "Essential features include:...Simple operator interface." 237. "The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238. |
| 15.10 | store the digitally compressed images in the high-capacity storage medium, and | "Essential features include:...Storage of pre- and post-alarm images." 237. "The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238. "High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236. "A full image database facility with search functions is an important part of a comprehensive AVS-based security system." 236. |
| 15.11 | vary the dimensions and the rate at which a particular image is stored in accordance with one of the externally derived commands. | "Essential features include:...Storage of pre- and post-alarm images...Simple operator interface." 237. "The rate of capture can be varied according to a specified schedule or speeded up in the case of detection of an interesting event. The rate of capture can be directly linked to the measured amount of activity in a scene." 238. "High-quality stored images of alarm events is (or should be) one of the crucial advantages which AVS systems have over standard time-lapse or continuous loop video tape recording." 236. "A full image database facility with search functions is an important part of a comprehensive AVS-based security system." 236. |